

5.5 SALIDAS NUMÉRICAS

5.5.1 Introducción

Grupo de Programas PC:

PC124, PC124ml, PC126M, PC128, PC128M, PC128Ma, PC28Mb, PC34, PC44, PC54, PC173, PC162

Estos Programas serán utilizados en los siguientes casos:

- Cuando interese tener una salida numérica completa
- Cuando se quiera comprobar con mayor detalle las salidas de los Programas Gráficos
- En el Capítulo de Autochequeo, donde podrán apreciarse sus posibilidades

5.5.2 Grupo de Programas PC

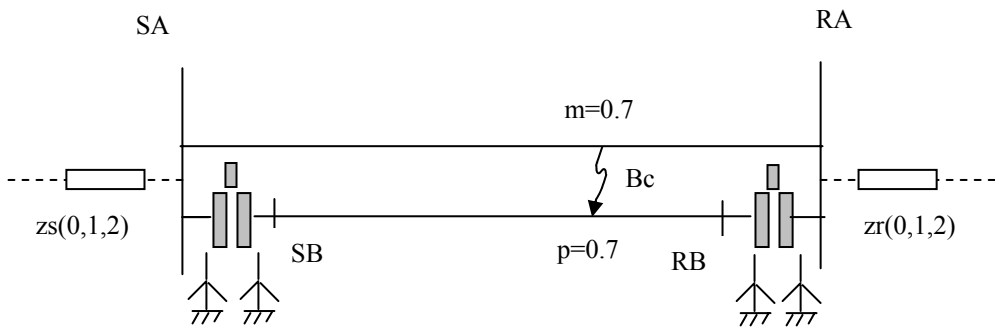
Como ejemplos más interesantes en relación a su complejidad y a la comparación con salidas gráficas realizadas, se adjuntan los casos siguientes:

Programa PC128M: Falta Intercircuito Bc

Programa PC173: Falta Triple ag-ag-cg

Programa PC128M:

Esquema:



Programa	PC128M		
Entrada por Input	UAn=220 kV, UBn=66 kV, kE=1, LA=LB=66 km, Sccs=5000 MVA, Sccr=5000 MVA, Kr0=1		
	Sp=120 MVA, Ss=120 MVA, St=40 MVA, Up=220 kV, Us=66 kV, Ut=33 kV, tccps=12 %, tccpt=5%, tccst=2 %		
	zsr= ∞		
	Compensación 21= No		
Parámetro	k0 = zs0/zr0 = 10		
Falta Intercircuito m=p	m: Línea SA-RA	m = p	0.7
		Tipo	Bc
		Elemento	--
	p:Línea SB-RB	Rf	0 Ohms
		Rg	--
Salida 4	Ohm-Volt-Amp (polar)		Bc

Salida Bc del Programa PC128M:

Tipo de Falta: Aa=1, Bc=2, Cb=3, Aag=4, Bcg=5, Cbg=6, Aab=7, Bac=8, Cbc=9

Aabg=10, Bacg=11, Cbcg=12, Aabc=13, Aabcg=14, ABCabc=15, ABCabcg=16: 2

UA(kV)=220

UB(kV)=66

LA(km)=66.00

LB(km)=66.00

kE=E/Enominal =1

Sccs=5000

Sccr=5000

Kr0=1.00

k0=10.00

Impedancia de Transferencia, Si(1), No(2) =2

Compensacion 21, Si(1), No(2) =2

m =0.70

Falta:Bc

Rf:0.00

SAm =3.83 +i(19.10)

RAm =1.64 +i(8.19)

Salida: pu(cart)=1, pu(polar)=2, Ohm-Volt-Amp(cart)=3,
Ohm-Volt-Amp(polar)=4 : 4

SALIDA 21, Ohm , polar

Nota: Componentes de Z >=10000 Ohm se representan por Inf

Nota: Componentes de Z <=-10000 Ohm se representan por -Inf

SAm= 19.48(78.7 °)(Ohm)

RAm= 8.35(78.7 °)(Ohm)

SBp= 20.80(61.4 °)(Ohm)

RBp= 8.91(61.4 °)(Ohm)

SAm_ZAB= 77.63(19.6 °)(Ohm)

SAm_ZBC= 65.14(84.6 °)(Ohm)

SAm_ZCA=1469.38(130.8°)(Ohm)

SAm_ZAG= 131.33(150.8°)(Ohm)

SAm_ZBG= 22.47(41.4 °)(Ohm)

SAm_ZCG= 131.40(-106.4°)(Ohm)

SBp_ZAB= 453.34(-15.0°)(Ohm)

SBp_ZBC= 22.60(101.5°)(Ohm)

SBp_ZCA= 30.93(158.4°)(Ohm)

SBp_ZAG= 28.70(-37.4°)(Ohm)

SBp_ZBG= 22.05(-158.2°)(Ohm)

SBp_ZCG= 10.96(117.8°)(Ohm)

RAm_ZAB= 46.11(17.5 °)(Ohm)
 RAm_ZBC= 38.72(88.0 °)(Ohm)
 RAm_ZCA=1452.48(-48.3°)(Ohm)
 RAm_ZAG= 31.18(-174.4°)(Ohm)
 RAm_ZBG= 10.16(46.1 °)(Ohm)
 RAm_ZCG= 27.49(-57.7°)(Ohm)

RBp_ZAB= 447.29(161.3°)(Ohm)
 RBp_ZBC= 11.23(107.4°)(Ohm)
 RBp_ZCA= 17.37(155.0°)(Ohm)
 RBp_ZAG= 10.41(-19.3°)(Ohm)
 RBp_ZBG= 6.29(-144.5°)(Ohm)
 RBp_ZCG= 5.00(131.4°)(Ohm)

SALIDA 67N, Volt, Amp, polar

SAm_67N:	VSApol=83251 (V)	ISAmop=1792 (A)	AngDirSAm=-33.2°
SBp_67N:	VSBpol=5678 (V)	ISBpop=1922 (A)	AngDirSBp=111.3°
RAm_67N:	VRAPol=47419 (V)	IRAmop=5428 (A)	AngDirRAm=-80.6°
RBp_67N:	VRBpol=8859 (V)	IRBpop=5202 (A)	AngDirRBp=28.0 °

SALIDA V(0,1,2), I(0,1,2) Volt,Amp polar

Vm0 = 35438(74.8 °)(V)
 Vm1 = 100690(-5.7 °)(V)
 Vm2 = 27945(-26.5°)(V)
 Vp0 = 20848(-112.1°)(V)
 Vp1 = 32486(29.5 °)(V)
 Vp2 = 22792(-12.3°)(V)
 VSA0 = 27750(53.3 °)(V)
 VSA1 = 117361(-1.8 °)(V)
 VSA2 = 10613(-13.1°)(V)
 VRA0 = 15806(77.6 °)(V)
 VRA1 = 111434(-2.9 °)(V)
 VRA2 = 16446(-15.6°)(V)
 VSB0 = 1893(77.1 °)(V)
 VSB1 = 36963(3.0 °)(V)
 VSB2 = 6200(-40.6°)(V)
 VRB0 = 2953(152.5°)(V)
 VRB1 = 36688(7.0 °)(V)
 VRB2 = 10998(-37.6°)(V)

Im0 = 2370(-177.4°)(A)
 Im1 = 2370(-57.4°)(A)
 Im2 = 2370(62.6 °)(A)
 Ip0 = 2370(2.6 °)(A)
 Ip1 = 2370(-117.4°)(A)
 Ip2 = 2370(122.6°)(A)
 Is0 = 287(143.3°)(A)
 Is1 = 1071(-69.5°)(A)
 Is2 = 1096(76.9 °)(A)
 Ir0 = 1633(167.6°)(A)
 Ir1 = 1723(-70.5°)(A)
 Ir2 = 1699(74.4 °)(A)
 ISAm0= 597(-159.9°)(A)
 ISAm1= 938(-58.2°)(A)
 ISAm2= 913(66.8 °)(A)
 ISBp0= 641(8.4 °)(A)
 ISBp1= 794(-119.9°)(A)
 ISBp2= 845(115.9°)(A)

IRAm0= 1809(177.0°)(A)
 IRAm1= 1433(-56.8°)(A)
 IRAm2= 1461(60.0°)(A)
 IRBp0= 1734(0.5°)(A)
 IRBp1= 1578(-116.1°)(A)
 IRBp2= 1534(126.4°)(A)

SALIDA V(a,b,c), I(a,b,c) Volt, Amp Polar

Vma = 135014(5.0°)(V)
 Vmb = 54808(-159.0°)(V)
 Vmc = 123665(116.6°)(V)
 Vpa = 43503(-10.9°)(V)
 Vpb = 33644(-116.6°)(V)
 Vpc = 54808(-159.0°)(V)
 VSAA = 145134(6.4°)(V)
 VSAb = 82895(-125.6°)(V)
 VSAC = 126624(111.4°)(V)
 VRAa = 130654(2.4°)(V)
 VRAb = 87251(-134.5°)(V)
 VRAc = 118871(119.8°)(V)
 VSBa = 42046(-0.4°)(V)
 VSBb = 29266(-121.4°)(V)
 VSBc = 40005(129.7°)(V)
 VRBa = 42513(-1.1°)(V)
 VRBb = 26505(-125.7°)(V)
 VRBc = 43786(142.8°)(V)

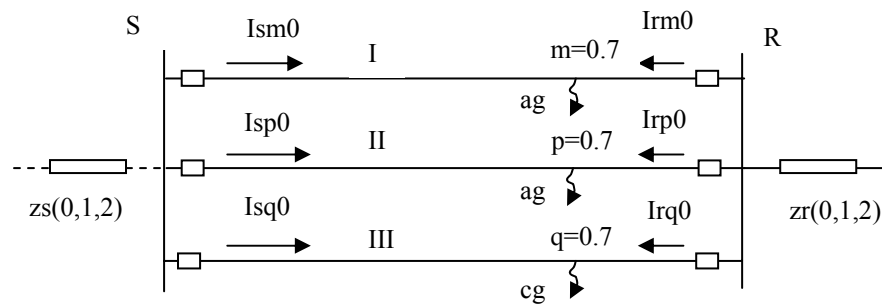
Ima = 0(33.7°)(A)
 Imb = 7111(-177.4°)(A)
 Imc = 0(-166.0°)(A)
 Ipa = 0(-126.9°)(A)
 Ipb = 0(0.0°)(A)
 Ipc = 7111(2.6°)(A)
 Isa = 459(30.9°)(A)
 Isb = 2336(179.3°)(A)
 Isc = 1276(11.3°)(A)
 Ira = 669(147.0°)(A)
 Irb = 4941(177.2°)(A)
 Irc = 842(32.2°)(A)

ISAmA= 334(-29.0°)(A)
 ISAmB= 2429(-171.9°)(A)
 ISAmC= 443(-14.3°)(A)
 ISBpa= 211(128.3°)(A)
 ISBpb= 251(161.4°)(A)
 ISBpc= 2271(0.9°)(A)
 IRAmA= 334(151.0°)(A)
 IRAmB= 4699(179.8°)(A)
 IRAmC= 443(165.7°)(A)
 IRBpa= 211(-51.7°)(A)
 IRBpb= 251(-18.6°)(A)
 IRBpc= 4842(3.5°)(A)

El caso resuelto para el Programa PC128M está también resuelto para el Programa PG128Mc. Por tanto el listado de salida del Programa PC128M puede compararse con las Gráficas de las páginas 435...447 de esta Memoria.

Programa PC173:

Esquema:



Programa	PC173		
Entrada Standard	Un=220 kV, kE=1, L=220 km, Sccs=5000 MVA, Sccr=5000 MVA Kr0=1		
	zsr= ∞		
	Compensación 21= No		
Parámetro	$k0 = zs0/zr0 = 10$		
Falta Triple m, p, q	Falta m Línea SR I	m	0.7
		Tipo	ag
		Elemento	AG
		Rfm	0
		Rgm	--
	Falta p Línea SR II	p	0.7
		Tipo	ag
		Elemento	AG
		Rfp	0
		Rgp	--
	Falta q Línea SR III	q	0.7
		Tipo	cg
		Elemento	CG
		Rfq	0
		Rgq	--
Salida	Ohm-Volt-Amp (cart)		ag-ag-cg
	Ohm-Volt-Amp (pol)		

Salida ag-ag-cg del Programa PC173:

PC173

Esquema 3 Lineas entre S y R
Falta Triple m,p,q
zsr si, no

Un =220 (kV) L=220 (km)
Sccs=5000 (MVA)
Sccr=5000 (MVA)
Kr0=1.00
k0=10.00

m =0.70 Falta:ag Rfm:0.00 (Ohm)
Sm =12.77+i(63.68)(Ohm)
Rm =5.47 +i(27.29)(Ohm)

p =0.70 Falta:ag Rfp:0.00 (Ohm)
Sp =12.77+i(63.68)(Ohm)
Rp =5.47 +i(27.29)(Ohm)

q =0.70 Falta:cg Rfp:0.00 (Ohm)
Sq =12.77+i(63.68)(Ohm)
Rq =5.47 +i(27.29)(Ohm)

SALIDA 21, Ohm, cartesianas

Sm_ZAB: -119.56+i(143.42)Ohm
Sm_ZBC: 1530.03+i(619.05)Ohm
Sm_ZCA: 62.72+i(137.25)Ohm
Sm_ZAG: -2.38+i(54.20)Ohm
Sm_ZBG: 218.06+i(-78.65)Ohm
Sm_ZCG: -158.25+i(-148.73)Ohm

Rm_ZAB: -67.32+i(68.47)Ohm
Rm_ZBC: -1511.79+i(-528.08)Ohm
Rm_ZCA: 38.90+i(73.41)Ohm
Rm_ZAG: -3.46+i(24.65)Ohm
Rm_ZBG: 71.15+i(-37.29)Ohm
Rm_ZCG: -51.96+i(-26.88)Ohm

Sp_ZAB: -119.56+i(143.42)Ohm
Sp_ZBC: 1530.03+i(619.05)Ohm
Sp_ZCA: 62.72+i(137.25)Ohm
Sp_ZAG: -2.38+i(54.20)Ohm
Sp_ZBG: 218.06+i(-78.65)Ohm
Sp_ZCG: -158.25+i(-148.73)Ohm

Rp_ZAB: -67.32+i(68.47)Ohm
Rp_ZBC: -1511.79+i(-528.08)Ohm
Rp_ZCA: 38.90+i(73.41)Ohm
Rp_ZAG: -3.46+i(24.65)Ohm
Rp_ZBG: 71.15+i(-37.29)Ohm
Rp_ZCG: -51.96+i(-26.88)Ohm

$Sq_ZAB = -708.57 + i(1056.00) \text{ Ohm}$
 $Sq_ZBC = 114.92 + i(62.27) \text{ Ohm}$
 $Sq_ZCA = 5.27 + i(103.61) \text{ Ohm}$
 $Sq_ZAG = 41.33 + i(-88.96) \text{ Ohm}$
 $Sq_ZBG = -132.31 + i(13.15) \text{ Ohm}$
 $Sq_ZCG = 17.16 + i(36.19) \text{ Ohm}$

$Rq_ZAB = 726.80 + i(-965.03) \text{ Ohm}$
 $Rq_ZBC = 54.80 + i(27.32) \text{ Ohm}$
 $Rq_ZCA = -0.56 + i(48.59) \text{ Ohm}$
 $Rq_ZAG = 19.17 + i(-28.33) \text{ Ohm}$
 $Rq_ZBG = -51.64 + i(-2.93) \text{ Ohm}$
 $Rq_ZCG = 9.48 + i(14.38) \text{ Ohm}$

SALIDA 21, Ohm, polar

$Sm_ZAB = 186.71(129.8^\circ) \text{ (Ohm)}$
 $Sm_ZBC = 1650.52(22.0^\circ) \text{ (Ohm)}$
 $Sm_ZCA = 150.91(65.4^\circ) \text{ (Ohm)}$
 $Sm_ZAG = 54.26(92.5^\circ) \text{ (Ohm)}$
 $Sm_ZBG = 231.81(-19.8^\circ) \text{ (Ohm)}$
 $Sm_ZCG = 217.17(-136.8^\circ) \text{ (Ohm)}$

$Sp_ZAB = 186.71(129.8^\circ) \text{ (Ohm)}$
 $Sp_ZBC = 1650.52(22.0^\circ) \text{ (Ohm)}$
 $Sp_ZCA = 150.91(65.4^\circ) \text{ (Ohm)}$
 $Sp_ZAG = 54.26(92.5^\circ) \text{ (Ohm)}$
 $Sp_ZBG = 231.81(-19.8^\circ) \text{ (Ohm)}$
 $Sp_ZCG = 217.17(-136.8^\circ) \text{ (Ohm)}$

$Sq_ZAB = 1271.69(123.9^\circ) \text{ (Ohm)}$
 $Sq_ZBC = 130.71(28.5^\circ) \text{ (Ohm)}$
 $Sq_ZCA = 103.74(87.1^\circ) \text{ (Ohm)}$
 $Sq_ZAG = 98.09(-65.1^\circ) \text{ (Ohm)}$
 $Sq_ZBG = 132.96(174.3^\circ) \text{ (Ohm)}$
 $Sq_ZCG = 40.06(64.6^\circ) \text{ (Ohm)}$

$Rm_ZAB = 96.02(134.5^\circ) \text{ (Ohm)}$
 $Rm_ZBC = 1601.36(-160.7^\circ) \text{ (Ohm)}$
 $Rm_ZCA = 83.08(62.1^\circ) \text{ (Ohm)}$
 $Rm_ZAG = 24.90(98.0^\circ) \text{ (Ohm)}$
 $Rm_ZBG = 80.33(-27.7^\circ) \text{ (Ohm)}$
 $Rm_ZCG = 58.50(-152.6^\circ) \text{ (Ohm)}$

$Rp_ZAB = 96.02(134.5^\circ) \text{ (Ohm)}$
 $Rp_ZBC = 1601.36(-160.7^\circ) \text{ (Ohm)}$
 $Rp_ZCA = 83.08(62.1^\circ) \text{ (Ohm)}$
 $Rp_ZAG = 24.90(98.0^\circ) \text{ (Ohm)}$
 $Rp_ZBG = 80.33(-27.7^\circ) \text{ (Ohm)}$
 $Rp_ZCG = 58.50(-152.6^\circ) \text{ (Ohm)}$

$Rq_ZAB = 1208.11(-53.0^\circ) \text{ (Ohm)}$
 $Rq_ZBC = 61.23(26.5^\circ) \text{ (Ohm)}$
 $Rq_ZCA = 48.60(90.7^\circ) \text{ (Ohm)}$
 $Rq_ZAG = 34.21(-55.9^\circ) \text{ (Ohm)}$
 $Rq_ZBG = 51.72(-176.8^\circ) \text{ (Ohm)}$
 $Rq_ZCG = 17.23(56.6^\circ) \text{ (Ohm)}$

SALIDA 67N, Volt, Amp, polar

Sm_67N:	Vspol=62115 (V)	Ismop=893 (A)	AngDirSm=-143.3°
Sp_67N:	Vspol=62115 (V)	Ispop=893 (A)	AngDirSp=-143.3°
Sq_67N:	Vspol=62115 (V)	Isqop=1495 (A)	AngDirSq=16.5 °
Rm_67N:	Vrpol=20611 (V)	Irmop=2191 (A)	AngDirRm=-141.1°
Rp_67N:	Vrpol=20611 (V)	Irpop=2191 (A)	AngDirRp=-141.1°
Rq_67N:	Vrpol=20611 (V)	Irqop=3466 (A)	AngDirRq=10.4 °

SALIDA V(0,1,2), I(0,1,2) Volt,Amp, cartesianas

Vm0 = -60048+i(-20389)(V)
 Vm1 = 89323+i(3853)(V)
 Vm2 = -29275+i(16536)(V)
 Vp0 = -60048+i(-20389)(V)
 Vp1 = 89323+i(3853)(V)
 Vp2 = -29275+i(16536)(V)
 Vq0 = -7893+i(-53689)(V)
 Vq1 = 77276+i(-11078)(V)
 Vq2 = -2210+i(41376)(V)
 Vs0 = -15216+i(-14042)(V)
 Vs1 = 114244+i(-2111)(V)
 Vs2 = -7276+i(6771)(V)
 Vr0 = -4827+i(-4889)(V)
 Vr1 = 105771+i(-2643)(V)
 Vr2 = -11575+i(11669)(V)

Im0 = -127+i(-1020)(A)
 Im1 = -127+i(-1020)(A)
 Im2 = -127+i(-1020)(A)
 Ip0 = -127+i(-1020)(A)
 Ip1 = -127+i(-1020)(A)
 Ip2 = -127+i(-1020)(A)
 Iq0 = 905+i(1383)(A)
 Iq1 = 746+i(-1475)(A)
 Iq2 = -1650+i(92)(A)
 Ism0= -55+i(-293)(A)
 Ism1= -15+i(-394)(A)
 Ism2= -81+i(-362)(A)
 Irm0= -72+i(-727)(A)
 Irm1= -113+i(-625)(A)
 Irm2= -46+i(-658)(A)
 Isp0= -55+i(-293)(A)
 Isp1= -15+i(-394)(A)
 Isp2= -81+i(-362)(A)
 Irp0= -72+i(-727)(A)
 Irp1= -113+i(-625)(A)
 Irp2= -46+i(-658)(A)
 Isq0= 255+i(428)(A)
 Isq1= 247+i(-531)(A)
 Isq2= -538+i(-28)(A)
 Irq0= 650+i(955)(A)
 Irq1= 498+i(-944)(A)
 Irq2= -1113+i(120)(A)

SALIDA $V(0,1,2)$, $I(0,1,2)$ Volt,Amp polar

$V_{m0} = 63415(-161.2^\circ)(V)$
 $V_{m1} = 89406(2.5^\circ)(V)$
 $V_{m2} = 33623(150.5^\circ)(V)$
 $V_{p0} = 63415(-161.2^\circ)(V)$
 $V_{p1} = 89406(2.5^\circ)(V)$
 $V_{p2} = 33623(150.5^\circ)(V)$
 $V_{q0} = 54266(-98.4^\circ)(V)$
 $V_{q1} = 78066(-8.2^\circ)(V)$
 $V_{q2} = 41435(93.1^\circ)(V)$
 $V_{s0} = 20705(-137.3^\circ)(V)$
 $V_{s1} = 114264(-1.1^\circ)(V)$
 $V_{s2} = 9939(137.1^\circ)(V)$
 $V_{r0} = 6870(-134.6^\circ)(V)$
 $V_{r1} = 105804(-1.4^\circ)(V)$
 $V_{r2} = 16436(134.8^\circ)(V)$

$I_{m0} = 1027(-97.1^\circ)(A)$
 $I_{m1} = 1027(-97.1^\circ)(A)$
 $I_{m2} = 1027(-97.1^\circ)(A)$
 $I_{p0} = 1027(-97.1^\circ)(A)$
 $I_{p1} = 1027(-97.1^\circ)(A)$
 $I_{p2} = 1027(-97.1^\circ)(A)$
 $I_{q0} = 1653(56.8^\circ)(A)$
 $I_{q1} = 1653(-63.2^\circ)(A)$
 $I_{q2} = 1653(176.8^\circ)(A)$
 $I_{sm0} = 298(-100.6^\circ)(A)$
 $I_{sm1} = 395(-92.1^\circ)(A)$
 $I_{sm2} = 371(-102.6^\circ)(A)$
 $I_{rm0} = 730(-95.7^\circ)(A)$
 $I_{rm1} = 635(-100.2^\circ)(A)$
 $I_{rm2} = 660(-94.0^\circ)(A)$
 $I_{sp0} = 298(-100.6^\circ)(A)$
 $I_{sp1} = 395(-92.1^\circ)(A)$
 $I_{sp2} = 371(-102.6^\circ)(A)$
 $I_{rp0} = 730(-95.7^\circ)(A)$
 $I_{rp1} = 635(-100.2^\circ)(A)$
 $I_{rp2} = 660(-94.0^\circ)(A)$
 $I_{sq0} = 498(59.2^\circ)(A)$
 $I_{sq1} = 586(-65.0^\circ)(A)$
 $I_{sq2} = 539(-177.0^\circ)(A)$
 $I_{rq0} = 1155(55.8^\circ)(A)$
 $I_{rq1} = 1068(-62.2^\circ)(A)$
 $I_{rq2} = 1119(173.8^\circ)(A)$

SALIDA $V(a,b,c)$, $I(a,b,c)$ Volt,Amp, cartesianas

$V_{ma} = 0+i(0)(V)$
 $V_{mb} = -101055+i(-133293)(V)$
 $V_{mc} = -79088+i(72125)(V)$
 $V_{pa} = 0+i(0)(V)$
 $V_{pb} = -101055+i(-133293)(V)$
 $V_{pc} = -79088+i(72125)(V)$
 $V_{qa} = 67173+i(-23391)(V)$
 $V_{qb} = -90853+i(-137674)(V)$
 $V_{qc} = 0+i(0)(V)$

$V_{sa} = 91752 + i(-9382) \text{ (V)}$
 $V_{sb} = -76392 + i(-121611) \text{ (V)}$
 $V_{sc} = -61009 + i(88868) \text{ (V)}$
 $V_{ra} = 89370 + i(4137) \text{ (V)}$
 $V_{rb} = -64320 + i(-111027) \text{ (V)}$
 $V_{rc} = -39531 + i(92223) \text{ (V)}$

$I_{ma} = -382 + i(-3059) \text{ (A)}$
 $I_{mb} = 0 + i(0) \text{ (A)}$
 $I_{mc} = 0 + i(0) \text{ (A)}$
 $I_{pa} = -382 + i(-3059) \text{ (A)}$
 $I_{pb} = 0 + i(0) \text{ (A)}$
 $I_{pc} = 0 + i(0) \text{ (A)}$
 $I_{qa} = 0 + i(0) \text{ (A)}$
 $I_{qb} = 0 + i(0) \text{ (A)}$
 $I_{qc} = 2714 + i(4150) \text{ (A)}$
 $I_{sma} = -150 + i(-1049) \text{ (A)}$
 $I_{smb} = -35 + i(28) \text{ (A)}$
 $I_{smc} = 21 + i(143) \text{ (A)}$
 $I_{rma} = -232 + i(-2010) \text{ (A)}$
 $I_{rmb} = 35 + i(-28) \text{ (A)}$
 $I_{rmc} = -21 + i(-143) \text{ (A)}$
 $I_{spa} = -150 + i(-1049) \text{ (A)}$
 $I_{spb} = -35 + i(28) \text{ (A)}$
 $I_{spc} = 21 + i(143) \text{ (A)}$
 $I_{rpa} = -232 + i(-2010) \text{ (A)}$
 $I_{rpb} = 35 + i(-28) \text{ (A)}$
 $I_{rpc} = -21 + i(-143) \text{ (A)}$
 $I_{sqa} = -36 + i(-131) \text{ (A)}$
 $I_{sqb} = -35 + i(28) \text{ (A)}$
 $I_{sqc} = 835 + i(1388) \text{ (A)}$
 $I_{rqa} = 36 + i(131) \text{ (A)}$
 $I_{rqb} = 35 + i(-28) \text{ (A)}$
 $I_{rqc} = 1879 + i(2762) \text{ (A)}$

SALIDA $V(a,b,c)$, $I(a,b,c)$ Volt, Amp, polar

$V_{ma} = 0(0.0^\circ) \text{ (V)}$
 $V_{mb} = 167270(-127.2^\circ) \text{ (V)}$
 $V_{mc} = 107037(137.6^\circ) \text{ (V)}$
 $V_{pa} = 0(0.0^\circ) \text{ (V)}$
 $V_{pb} = 167270(-127.2^\circ) \text{ (V)}$
 $V_{pc} = 107037(137.6^\circ) \text{ (V)}$
 $V_{qa} = 71129(-19.2^\circ) \text{ (V)}$
 $V_{qb} = 164950(-123.4^\circ) \text{ (V)}$
 $V_{qc} = 0(-90.0^\circ) \text{ (V)}$
 $V_{sa} = 92231(-5.8^\circ) \text{ (V)}$
 $V_{sb} = 143614(-122.1^\circ) \text{ (V)}$
 $V_{sc} = 107794(124.5^\circ) \text{ (V)}$
 $V_{ra} = 89466(2.7^\circ) \text{ (V)}$
 $V_{rb} = 128312(-120.1^\circ) \text{ (V)}$
 $V_{rc} = 100338(113.2^\circ) \text{ (V)}$

$I_{ma} = 3082(-97.1^\circ) \text{ (A)}$
 $I_{mb} = 0(66.6^\circ) \text{ (A)}$
 $I_{mc} = 0(-128.6^\circ) \text{ (A)}$
 $I_{pa} = 3082(-97.1^\circ) \text{ (A)}$
 $I_{pb} = 0(141.7^\circ) \text{ (A)}$
 $I_{pc} = 0(34.0^\circ) \text{ (A)}$

Iqa = 0(79.6 °)(A)
Iqb = 0(-15.9°)(A)
Iqc = 4959(56.8 °)(A)
Isma= 1059(-98.2°)(A)
Ismb= 45(141.7°)(A)
Ismc= 144(81.6 °)(A)
Irma= 2023(-96.6°)(A)
Irmb= 45(-38.3°)(A)
Irmc= 144(-98.4°)(A)
Isma= 1059(-98.2°)(A)
Ismb= 45(141.7°)(A)
Ispc= 144(81.6 °)(A)
Irpa= 2023(-96.6°)(A)
Irpb= 45(-38.3°)(A)
Irpc= 144(-98.4°)(A)
Isqa= 136(-105.3°)(A)
Isqb= 45(141.7°)(A)
Isqc= 1620(59.0 °)(A)
Irqa= 136(74.7 °)(A)
Irgb= 45(-38.3°)(A)
Irgc= 3341(55.8 °)(A)

El caso resuelto para el Programa PC173 está también resuelto para el Programa PG173ic. Por tanto el listado de salida del Programa PC173 puede compararse con las Gráficas de las páginas 379...395 de esta Memoria.